

# Amateur TRW radio Club WB6WPO

# cross talk

A MONTHLY NEWS BULLETIN OF TRW AMATEUR RADIO CLUB

Sponsored by Systems Employee Association

July 1974



WAC  
WAS  
DXCC  
FD'71  
FD'73

TRW/ARC Saturday Morning Nets 10AM

Primary	7.280 MHz
Secondary	3.980 MHz
Novice	7.140 MHz
Simplex	147.510 MHz

MEETING NOTICE -- July 31 -- noon  
Always the last Wednesday R2-1055

"A Ham's Eye View of the USA"

A slide presentation by WB6IDJ

David Gilmore, WB6IDJ, is TRW/ARC's featured speaker and slide show exhibitor for this month. Dave has recently returned from a trip across the USA with his wife, WN6SKM, and has an outstanding slide show replete with the latest on 2 M FM repeaters for the traveler. Also included in his presentation will be a few Field Day '74 slides.

Dave has an interesting background in the field of Entomology from Long Beach State which fits right in with his job in the Metrol-ogy Lab (finding bugs in electronic test equip-ment) for the last nine years.

Dave's present equipment includes an ICOM-230 and Tempo I. His other hobbies includes camp-ing, astronomy, and photography. Not to be outdone, daughter, Phyllis holds WN6CAG.

July Meeting Speaker TRW/ARC's WB6IDJ

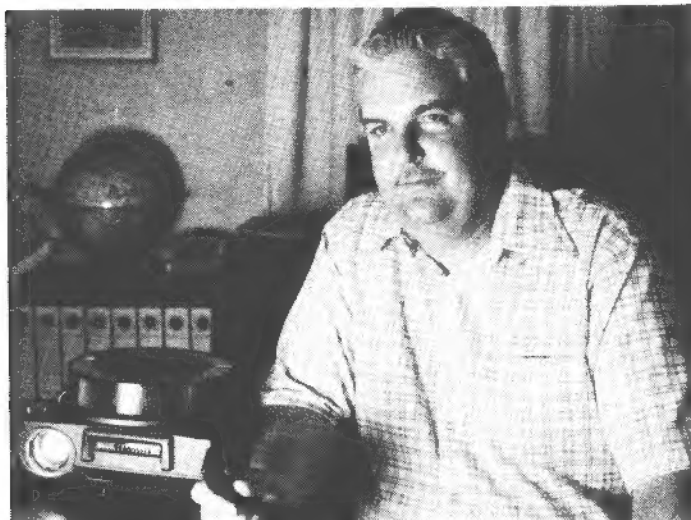


Photo by WN6SKM

The Prez Sez:

Credits: Dave Carson, WB6BGO, is to be commended for passing his EXTRA exam.

Al Lee, W6KQI, is leaving the area for a 3 yr foreign assignment. He will be sorely missed by all at TRW/ARC, as he alone was responsible for the planning and management of TRW/ARC Training Pro-gram.....his graduates are numerous!!

Field Day '74: Our thanks to all those who participated in TRW/ARC's field day activities this year. Although the total contacts were down (due to poor propagation conditions), I feel that overall it was the most successful field day yet. Over 80 persons participated during the 24 hr contest, many just visitors, many others very deeply involved in making the task successful. The publicity TRW/ARC had this year was truly gratifying, and with-out the support of TRW Maintenance and the facilities of the Naval Fuel Depot, it would have been a difficult task indeed.

Happy Birthday Monterey Park ARC is 15 years young in August (come to think of it, TRW/ARC is also 15 this year, too!!).

CrossTalk Issues While they last, the CrossTalk Editor will be glad to mail current or back issues (for free) to friends or relatives that you feel would be interested in the Club Newsletter. Please submit requests in writing, to-gether with the name and address you wish it mailed, to CrossTalk Editor, E1-3013.

73's,

Frank-1 (hi hi)

Secretary's Report

By Joel R. Wineman, WA6WRB

The Executive Board Meeting was called to order at 1205 on July 17, 1974, in E1-3068. Present were: Cartier, Dews, Freeman, Gilmore, Halligan, Hudson, Kennedy, Lee, Newhoffer, Weisz, and Wineman.

Announcements:

- o Al Lee will be leaving for a three year foreign assignment in September.
- o Paul Weisz is alive and well and attended his first board meeting since Jan.
- o Frank Halligan is now W6RLN.

Old Business

- o Freeman announced that the club officially has the letter "T" for the DX QSL Bureau activity. Lockheed Radio Club (W6LS) will handle the "first sort" and sub-divide the cards. TRW/ARC will start operation around Oct. 1st.
- o Halligan noted that the use of the M1 Lobby as Shack #2 is still in limbo. Fire safety regulations restrict lobby usage. Ted Carter still coordinating.
- o Bill Dews, K6AWO, was commended by the president for his outstanding work as Field Day Chairman.
- o Weisz told of his adventures in the field with the Sterling Park ARC. The details will come out soon in the CrossTalk. P.S. - no one won the Cold Duck for a contact with Paul (the editor will retain custody of the prizes!).
- o Halligan once again announced no word has been received on WB6WPO renewal.

New Business

- o Weisz submitted a proposed law from the FCC pertaining to frequency allocations for RACES. Wally Linstruth will report on this soon and ask members to submit individual letters to the FCC.
- o Halligan announced that during Al Lee's leave, the job of Training Manager will be temporarily held by Paul Weisz. Al was commended for the fine job he has done as manager.
- o Gilmore advised that his presentation at the July club meeting will be a slide show of "A Ham's Eye View of the USA" and "1974 Field Day Revisited".
- o Halligan spoke of the interference by a 2 Meter Repeater than can be heard on 147.51 MHz, a TRW/ARC net frequency. Possible solutions included contacting the Southern California Repeater Association.
- o Cartier suggested TRW/ARC hold an Auction/Flea Market on August 24 or 31. In addition to selling the club station surplus equipment (Fred Reed: is that your ELDICO at the station??), the members are invited to bring their equipment for sale. Further details are forthcoming.
- o Cartier also recommended that the club enter the VHF QSO Party on Sept 7 & 8; Cartier volunteered the use of his home and grounds high-atop PV Hill. More details to be announced.

The meeting was adjourned at 1315.

Field Day '74

Well, here it is a month from Field Day!

I wish to thank everyone who put it all together; helping to make this Field Day a great event.

The contacts were lower than last year, with band conditions changed from last year, also.

Two meter FM and AM came on strong and this is what Field Day is all about.

The six meter band even got in to the act for a DX hop to New York--Not Too Bad!!

I saw more CW operators this year than equipment to run; maybe better schedule time with the band Captains would have helped?

The generator got off to a bad start, but after 40 minutes of electronic theory, it continued to operate for the next 24 hours. The full gas cans helped, too!

The out-house was not a complete loss; one of the 2 meter op's was putting it to the test Sunday morning. Maybe the 2 meter station can use it next year.

The XYL's on food out did themselves again. There was good food and cold drinks to be had for all.

WOW!! Some novice station, with only two operators (one of each sex), over 100 QSO's....Not Too Bad!!

The main reason for Field Day is emergency operation and a fun get-together. This is just what took place from my view point. I hope all had a good time along with the work load.

73,

Bill Dews K6AWO  
Chairman

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For Sale:

- 1 - Ham-M-Rotator, \$85.
- 1 - Prop Pitch Motor/Supply/Selsyns, \$40.
- 1 - 3 element Cubex Quad, \$50.
- 1 - Drake 2B, \$125.
- 1 - Triax 54' crankup, \$50.

- 1 - Heath Monitor Scope,  
HO-10, \$30.
- 1 - Heath PanAdaptor,  
HO-13, \$30.

by Fred Reed, W6UMC  
Phone: 213-261-7951

TRW/ARC FD'74 Operator Scores

Listed below are the operator scores of all those hearty ops who scored over 100 contacts during the Field Day Contest. Also special mention to Mike Kirchmann, WN6BZA, who made 86 contacts himself on the Novice Station. In all, 30 operators were recorded in the logs of W6FQ/6 during the 24 hour operating period.

<u>PLACE</u>	<u>NAME</u>	<u>CALL</u>	<u>CONTACTS</u>
1	Bob Hume	WB6AQF	287
2	Ollie Saunders	W6OIC	224
3	Ed Reinberg	WA6UUV	162
4	Frank Cartier	WA6RAY	152
5	Herb Gleed	W6FQ	151
6	Ken Arck	WA6EMV	142
7	Doug Freeman	W6NHX	134
8	Steve Harrison	WB6PKA	109

<u>BAND</u>	<u>FONE</u>	<u>CW</u>	<u>TOTAL</u>
75/80	252	27	279
40	332	451	783
20	379	406	785
15	131	108	239
10	19	--	19
6	32	--	32
2	146	--	146
NOVICE	--	102	102
OSCAR	--	1	1
TOTAL	1291	1095	2386

**MEMBERSHIP -**

HEAR YE, HEAR "ME"! The second half of 'seventy-four is upon us, and our upward spiral continues. Zooming in to boost our rolls, we have six new additions. We extend a hearty and warm welcome to:-

- |   |                                 |
|---|---------------------------------|
| 1. WB6ZWL - RICHARD T. BAILEY.                | 4. K4JOR - R. DAVIS.            |
| 2. WA6DRV - JOE DALRYMPLE.                    | 5. K7SAL/6 - ROBERT W. RENNARD. |
| 3. Ex DL4YN- MICHAEL J. DEHART.<br>and WA6GVS | 6. K6AWS - BILL RODNER.         |

RICHARD (WB6ZWL), licensed for eighteen years, has a Conditional license. His main area of interest is running phone patches for overseas servicemen. He has teaching experience and prefers lunchtime meetings.

JOE (WA6DRV), over in M4, is mainly interested in DX and building antennas. He has a Heath SB 102.

MICHAEL (Ex DL4YN and WA6GVS) is an ex General licensee; has held a license for ten years and is interested in DX (CW).

R. DAVIS (K4JOR) has an Extra class license; has been licensed fifteen years; is interested in DX and building; has a Heath HW-7, an HW101 and likes field day activity. He is at present with TRW Data Systems in Atlanta, Ga.

ROBERT (K7SAL/6) has a Conditional license; has been licensed for twelve years; his main area of interest is building, VHF, HF operating; has an SSB-HF mobile rig, a Swan and a Collins.

BILL (K6AWS), licensed nineteen years, is in the Advanced license class and hails from Redondo Beach.

The word, via the grapevine, is that Field Day produced not only the customary bustling enthusiastic activity, but imbued several members of our audience with enthusiasm for Club membership.

QRU???

FRANK J. MILLER (WA6RJF)  
Membership Chairman.

HERB STRIKES AGAIN!

In reading the current issue of "The QCWA News", the call letters W6FQ showed up in a prominent position in the list of scores for the Quarter Century Wireless Association's 17th Annual QSO Party.

Of course you don't have to look over our membership roster to know that call belongs to our own Herb Gleed. Not only did it get a good workout on Field Day, but Herb put it to good use over the weekend of February 9-10, 1974 and racked up 340 QSO's to score second place in a total of 227 QCWA members who participated.

Nice going, Herb, and we'll look forward to seeing you high on the list again next year.

Just for the record, Herb is Vice-President of the Southern California Chapter of QCWA in addition to serving as net control station for the Sunday morning QCWA SSB net.

The Quarter Century Wireless Association is an organization of amateurs who have been licensed for twenty five years or more. If you find that you have been around ham radio that long, you probably will want to join and participate in the various activities that the Association sponsors. Give Herb a call if you are interested.

TREASURER'S REPORT

By WN6TXV

Balance on hand June 1, 1974 \$387.75

Receipts

Dues (renewals)	\$9.00
Dues (new)	14.00
QSL Sales	17.25
ARRL Memberships	7.00
	<u>\$47.25</u>

Expenses

Rig Loan (TRWECU)	\$20.00
QSL Overprint	11.50
ARRL Memberships	7.00
Field Day Expenses	63.65
	<u>\$102.15</u>

Balance on hand July 1, 1974 \$332.85



WA6JHD/KH6By ED THORNLEY, WA6JHD

Early in June, my XYL Judy and I spent a week in Hawaii enjoying a neat vacation. We were with friends and had chance to see a lot of places off the tourists beaten path.

To add a bit of interest to the trip, we borrowed Bill Fisher's Drake TR-22 2-meter FM transceiver and tried it out. There is plenty of 2-meter activity on all the islands so we had a chance to work a number of stations on Oahu through the Waikiki repeater on 146.16 -.76 and also on 146.52 simplex.

We had a neat QTH on the 10th floor of the Reef Hotel overlooking Waikiki Beach and had no problem getting out. But the one-watt TR-22 pleasantly suprised us when we were sitting by the hotel pool in our swim trunks and were able to make QSO's. I don't think we've ever had a nicer spot for portable operation than that one!

We did miss out on a lot more activity by not having crystals for the Honolulu repeater on 146.28 - .88. This repeater is located on top of Diamond Head in full view of all of Waikiki Beach. It is linked by UHF to similar 2-meter repeaters on the islands of Maui and Hawaii so you could talk all over the three islands through the one repeater.

The TR-22 seems to be an ideal piece of gear for vacation operation. It utilizes self-contained rechargeable ni-cad batteries good for several hours of operation and is easy to carry and operate. The new 12-channel C model would provide plenty of frequencies for just about any place you might go. We hope to have one of our own for our next vacation trip.

In spite of what people have said about Hawaii being over-crowded and expensive, we had a beautiful trip. Once you get away from the tourist oriented cities of Waikiki and Honolulu, you really feel like you are in paradise. The skies are deep blue with snow white clouds and no smog! Flowers are in bloom everywhere and the people are relaxed and seem more content than we have seen anywhere else.

Our trip included a visit to the Polynesian Cultural Center. This was a very enjoyable experience as we got to meet with young people from all the six major cultures of Polynesia and learn more about the way they live. The Center is operated by the Mormon Church as a part of their college located on the windward side of Oahu. The center includes six "villages" each representing the way of life of a particular culture. The young people who operate the center are college students working for their tuition. When they complete their work, they return to their homes scattered throughout the South Pacific to teach and to help their fellow men and women.

All-in-all, a very nice vacation experience. We hope to do it again some day, but it seems like there are a few thousand other places that we ought to visit also. When we do, we'll be carrying a rig with us to add to our vacationing pleasure!

Two Meter Power Amplifier

By Kenneth Arck, WA6EMV

Editor's Note: This article was contributed by TRW/ARC's own Associate Member, Ken Arck. Ken's home address is: 7003 Willowtree Drive, Rancho PV, Calif 90274. Ken is very active on 2 Meter FM, and whenever you are in Signal Electronics, Torrance, be sure to say "hello, Ken".

INTRODUCTION

Many amateurs, like myself, own low power radios for two meter FM. These radios are extremely versatile and can be used in the car, at home, or can be taken with you when you stretch your legs.

Despite the versatility of these units, there are many times when more power would be appreciated. How many times have you been in the mobile, barely making a repeater, when more power would have the difference between an "armchair copy" and a weak "scuzzy" one?

Since most portable radios have an output level of about one watt, many of the commercially made amplifiers are not suitable for use because they need at least ten watts drive to realize full output. also, the cost of one of these babies can set you back a considerable amount.

With this in mind, the following amplifier was designed with four main considerations:

- (1) one to two watts drive, twenty-five watts MIN. output
- (2) cost should be kept below \$40.00
- (3) easy duplication
- (4) automatic antenna switching

CONSTRUCTION DETAILS

The only unique feature of this amplifier is the method of interstage coupling. Because of the extremely low input and output impedances (between 1 and 4 ohms), special measures had to be taken to insure a low SWR between Q1 and Q2. On the first model built, The SWR was so high that Q1 was destroyed.

After a bit of headscratching, it was decided that a T- network should replace the original Pi- network.



CONSTRUCTION DETAILS (cont.)

At the connection points on Q1 and Q2, small pieces of pc boards were used to insulate these points from the main board. this method eliminates the need for an etched board. If you don't mind the extra work involved, small "moats" can be etched at these points, but since the pc board "standoffs" add a little capacitance to the circuit, the values of the base capacitors will have to be increased slightly.

TUNE-UP

Unlike tube amplifiers, which are tuned for a dip in the plate current, a solid-state amplifier should be tuned for maximum output. TWO WORDS OF CAUTION!!!

When initially tuning the amplifier, use a lower than normal voltage (about 6 to 8 volts is low enough). This will prevent the transistors from exceeding their ratings. Also, be certain the collector current for both transistors is not exceeded. To be on the safe side, put an ammeter in series with the DC lead.

FOR CIRCUIT

When the amplifier is used with a transceiver, some form of switching is needed to remove it from the line when receiving. The circuit shown in Fig. 2 does an excellent job without the need for four expensive coaxial relays.

CONCLUSION

With one watt of drive, the amplifier delivers 27.5watts to the antenna as measured on a Waters wattmeter. In the near future another amplifier is planned with 1 watt in, 140 out.

Be waiting to hear how anyone does with his. 73, Ken WA6EMV

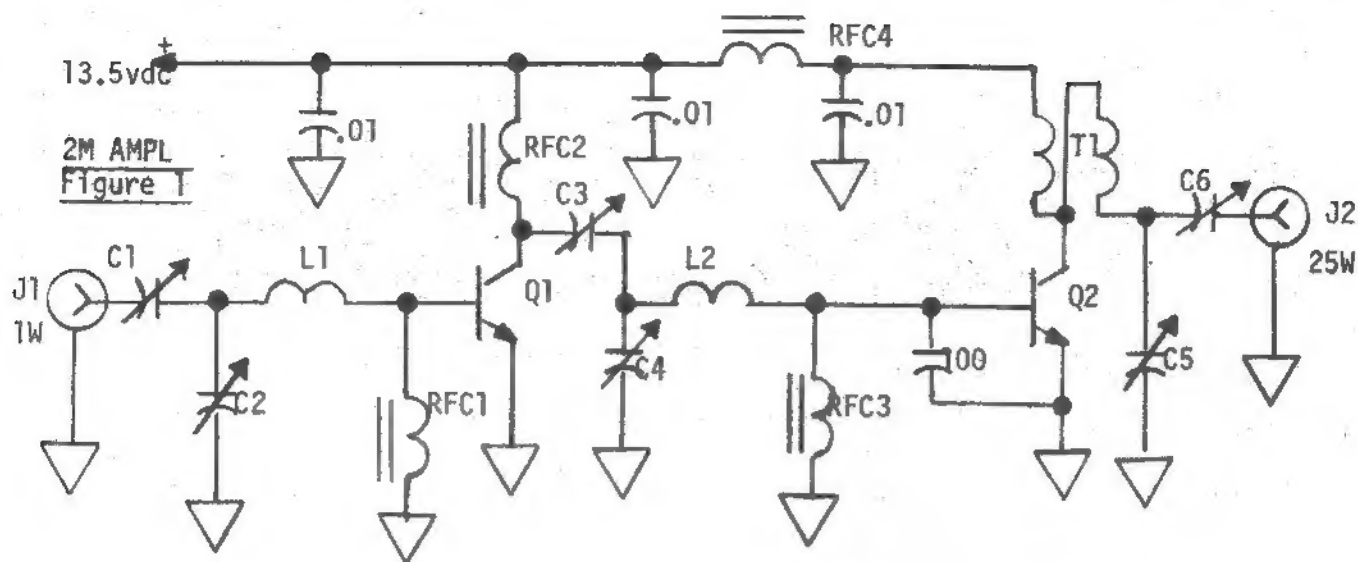


Figure 2 COR

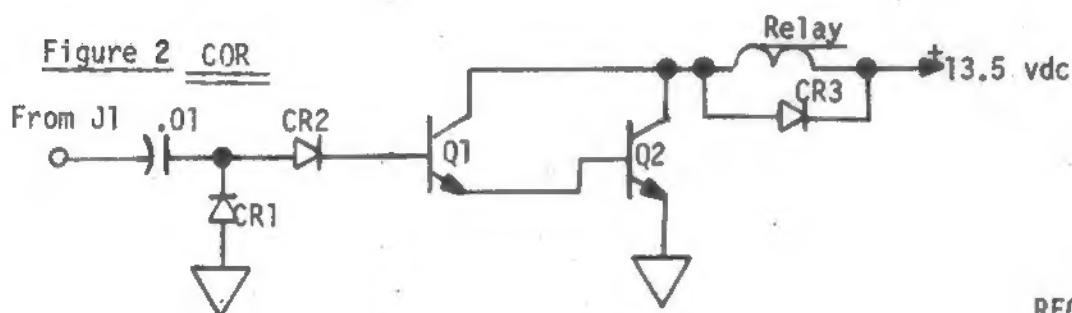
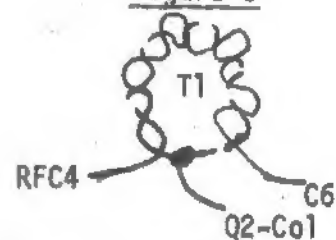


Figure 3



## Amplifier Parts List

C1, C3, C6 80 to 300 pf (Arco 462)  
 C2, C4, C5 4 to 40 pf (Arco 406)  
 RFC1 - RFC4 - Ferrite RF Choke  
 Ferroxcube or equiv.  
 L1 - 2 turns #20 wire 3/16" ID  
 L2 - 1 3/8" length #12 wire  
 Q1 - HEP 53005  
 Q2 - HEP 53007

## COR Parts List

CR1, CR2 - 1N51  
 CR3 - 100PRV, @ 500 ma silicon  
 Q1, Q2 - HEP 734's  
 Relay - DPDT contacts @ 3a/125VAC, 5k  
 coil @ 50 ma operating current

## Transformer T1 Notes:

2 - 4" lengths #20 wire  
 twisted with electric  
 drill to 16 crests per  
 inch @ 1/2 inch I.D.  
 Windings cross Connected.

Editor's Note: Thanks to Frank Mullen, WA6RJF, for drafting up the final schematics. This construction project is not for the novice in the VHF fabrication area. It is suggested that it may be necessary to contact Ken for further details, such as layout to minimize possible circuit instability after completion. Thanks also to Nelson Hayes, W6VBB, for his technical review of this article and many thanks to Ken Arck for submitting this article for publication.